April 23, 1998

Summary of Proposed Revisions to CEM Rule Parts 72 and 75

ACID RAIN PROGRAM

Purpose of Rulemaking

- Establish CEM 2000 requirements
- Improve cost effectiveness of monitoring
- Provide flexibility and clarity
- Strengthen areas of weakness in rule
- Improve implementation
- Specify NOx mass monitoring provisions to supplement NOx budget trading rule in SIP call

Rulemaking Process

- Solicited utility comments on improvements
- Established workgroup w/utilities and states
- Presented panel discussion at AWMA
- Released pre-proposal draft for unofficial public comment
- Received comments from 26 commenters: utilities, utility groups, vendors, and states

Rulemaking Schedule

- 5/97: Release pre-proposal draft to public
- 6/97: End pre-proposal comment period
- 12/97-3/98: 90 day inter-agency review
- 4/98: Proposal signed and published (?)
- 5-6/98: 45 day public comment period
- Early 99: Projected rule finalization
- 2000: Revisions fully implemented

Topics in Proposal

- Certification/recertification procedural changes
- CEM QA/QC revisions
  - Moisture monitors
  - Test Frequency and Grace periods
  - Flow Monitor QA
  - RATA Test Procedures
  - CEM Data Validation
  - Calibration Error Tests
  - QA/QC plan

Topics (cont'd)

- CEM revisions
  - Flexibility for backups and dual ranges
  - Span/range provisions
- Oil/gas monitoring
  - New low mass emission (LME) units exception
  - Appendix D revisions
  - New App I alternative to flow monitoring

Topics (cont'd)

- NOx Mass monitoring - SIP Trading Program
- Reporting revisions
- Protocol gas revisions
- Determinations on bias test, relative accuracy, missing data

Cert/Recert Procedures

- Clarify initial certification vs. recertification
  - Limit scope of recertification events
    - RATA, fuel flowmeter test, and App E testing only
    - All other events require diagnostic testing only
    - Extend recert review period to 120 days
- Allow disapproval of incomplete application

Cert/Recert (cont'd)

- Clarify hardcopy/electronic submittal rqmts
  - Allow Region/State/locals to waive
    - recertification application submittal
    - recertification test notice
  - Switch to electronic monitoring plans (except for hardcopy schematics)

CEM QA/QC: Moisture

- Affects 5-10%; pollutants measured dry
- Moisture monitor certification & QA by 2000
- Options:
  - Wet/dry O2 Analyzers: same QA as gas CEMS
  - Moisture Sensor: calibration and RATA
    - Sensor calibration error spec: 3% span
  - Lookup table for saturated streams only
- RATA: RM 4 or Moisture approx. method
  - spec: 10% or mean difference $\leq$ 1% H20

CEM QA/QC: Test Frequency & Grace Periods

- Reduced test frequency if infrequently operated
  - Based on QA Operating Quarters (≥168 operating hrs)
    - semi- & annual redefined as every 2 & 4 QA op. qtrs
    - linearity not rqd if < 168 op. hrs in qtr
    - but at least 1 linearity rqd every 4 calendar qtrs and 1 RATA rqd every 8 calendar qtrs

Add QA test grace periods

RATA: 720 unit op hrs

Linearity: 168 unit op hrs

CEM QA/QC: Flow Monitors

- RATAs
  - Annual RATA
    - 2 load for most units
    - 1 load if operate at single load >85%
  - Semi annual - 1 load
  - 3 load RATA: initial cert, recert, and every 5 years
  - Peaking units & bypass stacks - normal load only
- New quarterly QA: Flow/Load ratio analysis
- Flow coefficients kept on-site; 3 load RATA required when coefficients changed

CEM QA/QC: RATA procedures

- RATA Test Procedures
  - delete 4 month waiting time between RATAs
  - delete restriction of 2 RATA attempts for annual
  - eliminate rqmt for concurrent SO2/flow RATA
  - Perform 12-pt stratification test:
    - after wet scrubber to allow short RM line
    - to allow single point RATA sampling
- Revise low emitter RA specs and BAF

CEM QA/QC: RATA (cont'd)

- New method of determining L, M, H and N
  - L, M, H defined as % of 'range of operation'
    - minimum safe stable - max sustainable load
    - L: 0-30%; M: 30-60%; H: 60-100%
  - Historical load frequency distribution determines:
    - normal load(s); and
    - 2 most frequently used loads (for flow RATA)
- Expand SO2 RATA exemption:
  - fuel with % S > (% S of NG) burned < 480 hrs/yr

CEM QA/QC: Calibration Error Test

- Require daily cal after maintenance
- Routine adjustments: match tag value of gas
- Non-routine adjustments: permissible if follow-up cal within performance spec (2.5%)
- Allow daily cal with mid gas instead of high
- RB daily cal optional days RB data not used
- Alt. spec added for low-span DP-type flow
  - 0.01 inches of H20 (0.02 for daily cals)

CEM QA/QC: Data Validation

- Conditionally valid data:
  - Following 'probationary calibration error test' through completion of all cert/recert tests
  - If pass all tests on first attempt - validate data
  - If fail (except cal) - invalidate all conditional data
  - Test specific limits on length of recert test period
- Data validation rules during linearity & RATA:
  - Pre-test adjustments permitted (within perf specs)
  - Tests done "hands-off"

CEM QA/QC: QA/QC Plan Revisions

- Clarify QA/QC rqmts for Appendix D, E, G, I monitoring systems
- Delete rqmt for inventory of spare parts
- Require maintenance/repair records and test & maintenance procedures to be kept on-site

Backups and Dual Ranges

- Define new type of non-redundant backup
  - if same probe/sample interface and like-kind analyzer
    - no initial certification (annual 720 hour limit on use)
- Dual Range options:
  - Default high range value = 200% MPC
  - Non-redundant backup range: linearity before use

Span/Range Provisions

- Revise definition of span (100-125% MPC)
- Revise span adjustment requirements:
  - Re-span rqd if span exceeded by ≥ 10%
  - Flexibility added for non-representative conditions
  - Linearity rqd only if new span requires new cal gas
- Full-scale exceedances
  - report 200% of range during each hr of exceedance

LME Exception

- Applicability of low mass emissions units:
  - Natural gas- and/or oil-fired units with low historical, and projected potential emissions
  - < 25 tons (actual/potential) SO2 & NOx annually,
    - HI = maximum rated HI x # operating hrs
    - SO2 = uncontrolled E.F. x max HI
    - CO2 = emission factor x max HI
    - NOx = uncontrolled 90th % E.F. x max HI

LME Exception (cont'd)

- Reduced monitoring and reporting
  - No monitoring equipment installation or QA/QC
  - No missing data
  - Keep track of hours operated and fuel type burned
  - Report quarterly report with hourly data

Appendix D: oil sampling

- New oil sampling options:
  - flow proportional/weekly composite
  - as-delivered at shipment (by supplier or utility)
  - tank sampling after delivery
- Value Reported (% S, GCV):
  - Use default value (fuel contract limit, highest actual sample) for as-delivered or tank sampling
  - Use actual for tank or composite sampling
- Revise missing data (standard value)

Appendix D: gas sampling

- New gas sampling options:
  - As-delivered shipment in lots (e.g., LPG, propane)
  - Hourly average %S/GCV from gas chromatograph (GC) for variable gas (e.g., digester, landfill)
- Value Reported
  - For as-delivered: use default value (fuel contract limit, highest actual sample)
  - For GC: %S/GCV-use actual; GCV-highest 30 days
  - For PNG: %S - use .0006; GCV- actual or default
- Revise missing data (standard value)

Appendix D: flowmeter QA

- Fuel flowmeter QA
  - Accuracy test every 4 "flowmeter QA operating quarters" (>168 flowmeter operating hrs/qtr)
  - For orifice, nozzle, and venturi meters:
    - Visual inspection every 3 years
    - Transmitter Accuracy test every 4 QA op qtrs

    OR
  - New quarterly fuel flow/load test option (with above tests required every 5 years)

New I-Flow Method for oil/gas units

- Alternative to flow monitor for gas/oil units
- Use with SO2, CO2, and NOX CEMS
- Calculate stack volumetric flow from
  - Fuel flowmeter;
  - Fuel sampling (carbon content/GCV); and
  - CO2/O2 CEM
- Cert and QA Testing
  - component by component; or
  - I-flow system basis

NOx Mass Monitoring

- Not Acid Rain rqmt; only required if adopted by State or Federal Program
- Purpose: to supplement NOx budget trading rule in proposed supplemental SIP call
- NOx mass = NOx rate x Heat Input
  - NOx/diluent CEM and flow monitor (HI)
  - NOx/diluent CEM and Appendix D (HI)
  - Appendix E (NOx) and Appendix D (HI)
  - LME NOx Default E.F and max rated HI

Reporting Revisions

- CO2/heat input missing data
  - no fuel sampling
  - use same algorithm as SO2
- Prohibition against PMA<80%
  - exemption if operated <3000 hrs in past 3 years
  - exemption if catastrophic event

Reporting Revisions (cont.)

- Expand use of diluent cap:
  - optional for NOx; if use for NOx, optional for CO2 and Heat Input
  - not just for start-up
  - cap for boilers = 5% CO2; 14% O2
  - cap for turbines = 1% CO2; 19% O2

Reporting Revisions (cont.)

- Clarify reporting of partial operating hours
  - require reporting of hourly rates (SO2, CO2, HI)
  - optional field for reporting of totals
- Delete requirement for reporting of missing data cause/cures (RT 550)
  - keep on-site
  - still required to report recertifications (RT556)
  - still may optionally report RT550

Reporting Revisions (cont.)

- Require electronic submittal of quarterly reports
- Optional electronic signature (RT9xxs)
- No quarterly report for deferred units
- EDR revisions
  - support new flexibilities in rule
  - NOx mass for OTC and SIP Call ozone transport rule
  - test numbers
  - expanded RM data for RATAs
  - monitoring plan changes

Protocol Gas Revisions

- Incorporates 9/97 EPA Traceability Protocol
  - consistent with NSPS
  - improved assaying & accuracy determinations
  - allows cal gases produced with or without dilution
  - longer shelf lives and wider range of concentrations
- Revised zero air material definition
- Allow GMIS, RGM, CRM, NMI-SRM cal gas
- Rename "EPA Protocol gas" "Protocol 1 gas"

Determinations on studies

Findings of 3 CEM Studies:

- Bias Test - Don't drop or loosen
- Relative Accuracy - Don't tighten
- Missing Data Procedure - Don't ratchet up

Reasons: They are effective, scientifically justified, achievable, accepted, and can't be substantially improved.

Comments

- Rule, EDR, and EDR instructions on Web:

  www.epa.gov/acidrain/cems/rulechg.htm

- Comments on the CEM rule revisions should be mailed during the public comment period to:

  EPA Air Docket (6102)

  Attention: Docket No. A-97-35

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